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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/913,018	08/08/2001	Motonobu Yoshikawa	10873.779USWO	5057

23552 7590 05/14/2003

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EXAMINER

PRITCHETT, JOSHUA L

ART UNIT PAPER NUMBER

2872

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/913,018

Applicant(s)

YOSHIKAWA ET AL.

Examiner

Joshua L Pritchett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8-10, 15, 32-34, 41, 97, 99 and 102 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

- 6) ☒ Claim(s) 1, 2, 4-6, 15, 32-34, 41, 97, 99 and 102 is/are rejected.

- 7) ☒ Claim(s) 3 and 8-10 is/are objected to.

- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.

- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some \* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)

- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.

- 5) ☐ Notice of Informal Patent Application (PTO-152)

- 6) ☐ Other: \_\_\_\_\_.

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**DETAILED ACTION**



This action is in response to Amendment B (Paper No. 9) filed April 15, 2003. Claims 7, 11-14, 16-31, 35-40, 42-96, 98, 100-101 and 103-107 have been canceled at applicant's request in Amendment B.

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 15 and 99 are rejected under 35 U.S.C. 102(b) as being anticipated by Abel (US 3,811,749).

Regarding claim 15, claim 15 is rejection for the same reasons stated in the Previous Office Action (Paper No. 8) on pages 3-4.

Regarding claim 99, claim 99 is rejection for the same reasons stated in the Previous Office Action (Paper No. 8) on page 4.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-6 and 97 rejected under 35 U.S.C. 103(a) as being unpatentable over Abel (US 3,811,749) in view of Ohzawa (US 5,993,010).

Regarding claim 1, Abel discloses a reflective optical device comprising two non-axisymmetric reflection surfaces (18 and 20) for bringing light fluxes from an object into focus on an image surface (P2). Abel further discloses the two reflection surfaces being in a first reflection surface (18) and a second reflection surface (20) wherein the first and second reflection surfaces are disposed in this order in a direction in which the light fluxes travel and are arranged eccentrically (Fig. 2). Abel further discloses each of the first and second reflection surfaces is concave (Fig. 2) containing a center of the image surface and vertices of the reflection surfaces. Abel lacks reference to the reflection surfaces being non-axisymmetric. Ohzawa teaches the use of non-axisymmetric members in a reflecting array (col. 11 lines 43-47). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Abel reflecting surfaces be non-axisymmetric as taught by Ohzawa for the purpose of correcting ray aberrations due to oblique reflection.

Regarding claim 5, Abel teaches the invention as claimed but lacks reference to the non-axisymmetric reflectors and their shape. Ohzawa discloses the first reflection surface is concave in a cross-sectional shape taken in a direction perpendicular to a plane containing the center of the image surface and the vertices of the first and second surfaces (Fig. 8). It would have been

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obvious to a person of ordinary skill in the art at the time the invention was made to have the reflectors of Abel have the shape taught by Ohzawa for the purpose of correcting ray aberrations due to oblique reflection.

Regarding claim 6, Abel teaches the invention as claimed but lacks reference to the non-axisymmetric reflectors and their shape. Ohzawa discloses the second reflection surface is concave in a cross-sectional shape taken in a direction perpendicular to a plane containing the center of the image surface and the vertices of the first and second surfaces (Fig. 8). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the reflectors of Abel have the shape taught by Ohzawa for the purpose of correcting ray aberrations due to oblique reflection.

Regarding claim 97, Abel teaches the invention as claimed but lacks non-axisymmetric reflection surfaces. Ohzawa teaches the use of non-axisymmetric members in a reflecting array (col. 11 lines 43-47). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Abel reflecting surfaces be non-axisymmetric as taught by Ohzawa for the purpose of correcting ray aberrations due to oblique reflection.

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abel in view of Ohzawa as applied to claim 1 above, and further in view of Cook (US 4,834,517).

Regarding claim 2, Abel in combination with Ohzawa teaches the invention as claimed but lacks reference to a diaphragm located before the first reflection surface. Cook teaches a diaphragm (26) located before the first reflection surface on the object side. It would have been

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obvious to a person of ordinary skill in the art at the time the invention was made to include the Cook diaphragm in the Abel invention for the purpose of filtering out an excess and scattered light to obtain a signal with less error.

Regarding claim 4, Abel in combination with Ohzawa teaches the ratio of the distance between the first and second reflection surfaces and the focal length to be between 1.0 and 4.0 (Fig. 2).  $L_1$  and  $L_2$  are the focal lengths of both of the reflection surfaces and are the same value and the reflection surfaces are located a distance  $L_1$  plus  $L_2$  apart, therefore claimed ratio gives the value of 2.0 which is between 1.0 and 4.0.

Claims 32-34, 41 and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abel in view of Ohzawa as applied to claim 1 above, and further in view of Willey (US 5,841,574).

Regarding claims 32 and 102, Abel in combination with Ohzawa teaches the invention as claimed but lacks reference to the detector converting the optical signal to an electrical signal. Willey teaches the use of an electro-optic detector (col. 8 line 67 – col. 9 line 1). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the detector in the Abel invention convert the optical signal to an electrical signal for the purpose of precise measurement of the incoming data.

Regarding claim 33, Abel in combination with Ohzawa teaches the invention as claimed but lacks reference to the detecting means being a two-dimensional imaging element. Willey teaches the use of a camera as the detecting means (col. 8 line 67 – col. 9 line 1). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the

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camera taught by the Willey reference in the Abel invention for the purpose of creating a record of the data collected.

Regarding claim 34, Abel in combination with Ohzawa teaches the invention as claimed but lacks reference to the detecting means being sensitive to infrared radiation. Willey teaches the detector being sensitive to infrared radiation (col. 9 lines 4-7). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Abel detecting means be sensitive to infrared radiation as taught by Willey for the purpose of expanding the usage of the invention to include a wider range of information.

Regarding claim 41, Abel in combination with Ohzawa teaches the invention as claimed but lacks reference to the display being conveyed to a driver. Willey teaches a display means to convey the obtained image to a driver. A camera inherently has some means of display because of the use of some type of recording medium and a driver may include a person developing or observing the recording medium of the camera. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include in the Abel invention a means of conveying the obtained image as taught by Willey for the purpose of data analysis and interpretation.

#### *Allowable Subject Matter*

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record fails to teach or suggest the claimed relationship

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between the distance of the diaphragm to the first reflection surface and the focal length of the device.

Claims 8-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record fails to teach or suggest making the non-axisymmetric reflecting surfaces into toric shapes.

### ***Response to Arguments***

The examiner agrees with the applicant's remarks concerning the numbering of the claims. The mistake was made by the examiner when typing the action and the following claims are the claims that are still pending in the application. Claims 1-6, 8-10, 15, 32-34, 41, 97, 99 and 102 are still pending in the application. Claims 7, 11-14, 16-31, 35-40, 42-96, 98, 100-101 and 103-107 have been canceled in applicant's Amendment B.

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed April 15, 2003 with respect to claim 15 have been fully considered but they are not persuasive. The applicant argues on page 8 that Abel does not teach the shape limitation of claim 15. The applicant specifically argues that Abel does not teach a



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reflector convex in the direction perpendicular to a plane containing the vertices of the reflector. The examiner disagrees, Abel does illustrate a reflector convex in the direction perpendicular to a plane containing the vertices of the reflector as shown in Fig. 2 of the Abel reference. Figs. 1, 18, 19 and 26 of the present application are used in comparison to Fig. 2 of the Abel reference and the examiner distinguished no difference with regards to the convex nature of the reflective surfaces.

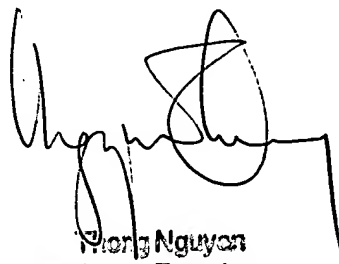
JS

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 703-305-7917. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JLP  
May 9, 2003

  
Phong Nguyen  
Primary Examiner